

I. AMENDMENTS TO THE CLAIMS:

Please replace the current set of claims with the following set in which Claims 5-19 have been amended and new Claim 20 has been added.

1. (Original) A circuit board having a controlled impedance via layout, the vias extending through the circuit board and being plated therewithin for mating with terminals of a connector mounted to said circuit board, comprising;

5 a repeating pattern of conductive vias, the pattern comprising at least first and second triads of conductive vias, each of the via triads including a pair of differential signal conductive vias and a single ground via formed in the circuit board, said differential signal conductive vias being spaced apart from each other in a first direction and said single ground conductive via of said via triad being spaced apart from said differential signal pair of conductive vias in a second direction that is different from said
10 first direction, the first via triad being disposed on said circuit board adjacent to the second via triad such that said second via triad associated ground via lies between said first and second differential signal via pairs, the first via triad ground via being spaced closer to its differential signal pair than to said second via triad differential signal pair.

2. (Original) The circuit board of claim 1, further including a first conductive reference plane spaced apart from a surface of said circuit board, the first reference plane including at least one non-conductive opening formed therein, the first reference plane one non-conductive opening being aligned with said first differential signal via pair such said first
5 differential signal via pair of said first via triad are encompassed within a perimeter of said non-conductive opening and said first reference plane further contacting said associated ground vias of first and second via triads.

3. (Original) The circuit board of claim 2, further including a second non-conductive opening aligned with said second differential signal via pair such said second differential signal via pair of said second via triad are encompassed within a perimeter of said second non-conductive opening and said second reference plane further contacting the associated
5 ground vias of said second via triad and another via triad.

4. (Original) The circuit board of claim 1, wherein said non-conductive opening has a non-circular configuration.

[6] 5. (Currently Amended) The circuit board of claim 2, further including a second conductive reference plane spaced apart from said first reference plane, the second reference plane also including at least one non-conductive opening formed therein, the second reference plane one non-conductive opening being aligned with said first differential signal via pair of said first via triad such that said first differential signal via pair of said first via triad are also encompassed within a perimeter of said second reference plane one non-conductive opening and said second reference plane further contacting said associated ground vias of first and second via triads.

[7] 6. (Currently Amended) The circuit board of claim 2, wherein each ground via of said first and second via triad is surrounded by an annular collar portion, the annular collar portion being joined to said first conductive reference plane.

[8] 7. (Currently Amended) The circuit board of claim [7] 6, wherein said annular collar portions extend for an extent of 360 degrees.

[9] 8. (Currently Amended) The circuit board of claim [7] 6, wherein said annular collar portions are partially circular and extend for an extent of less than 360 degrees.

[10] 9. (Currently Amended) The circuit board of claim [9] 8, where said annular collar portions extend no more than about 180 degrees.

[11] 10. (Currently Amended) An improved circuit board for use in differential signal applications, the circuit board having a pair of plated vias that are used to convey differential signals through said circuit board, said circuit board further including a pair of conductive traces exiting from said vias and extending to a location of said circuit board remote from said vias, the improvement comprising:

the traces having an exit portion and a transmission portion, the trace exit portions extending from said vias [10] for a preselected distance, said trace exit

portions having a width which is greater than a corresponding width of said transmission portions, said trace exit portions being joined to said vias by large connecting conductive portions.

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- [+2] 11. (Currently Amended) The circuit board of claim [+1] 10, wherein said two differential signal vias are aligned along a first axis and each of said trace exit portion extends away from said two vias along a second axis in a direction transverse to said first axis.
- [+3] 12. (Currently Amended) The circuit board of claim [+2] 11, wherein said transmission portions of said traces extend along a third axis spaced apart from said first axis and generally transverse to said second axis.
- [+4] 13. (Currently Amended) The circuit board of claim [+2] 11, wherein said trace exit portions each include a bend that diverges away from said second axis.
- [+5] 14. (Currently Amended) The circuit board of claim [+1] 10, wherein said ~~trace exit portions are joined to said vias by large connecting conductive portions~~ include flag portions extending away from said vias and toward each other.
- [+6] 15. (Currently Amended) The circuit board of claim [+1] 10, further including two distinct ground vias , the two ground vias being aligned together along an imaginary line that intersects with said first axis.
- [+7] 16. (Currently Amended) The circuit board of claim [+6] 15, further including a ground reference plane, the ground reference plane including an opening that encompasses said differential signal vias, said ground reference plane being connected to said ground vias.
- [+8] 17. (Currently Amended) A circuit board for use in differential signal applications, the circuit board having a pair of plated vias that are used to convey differential signals through said circuit board, said circuit board further including a pair of

5 conductive traces exiting from said vias and extending to a location of said circuit board remote from said vias, the improvement comprising:

 the traces having an exit portion and a transmission portion, the trace exit portions each including an enlarged area extending outwardly from said vias and extending toward each other along a first axis, said trace exit portions further including leg portions that extend away from the enlarged areas along a second axis that intersects with the first axis, and the leg ~~portion~~ portions joining to the transmission portion.

[19] 18. (Currently Amended) The circuit board of claim [18] 17, wherein said trace transmission portions extend along a third axis that intersects said second axis.

[20] 19. (Currently Amended) The circuit board of claim [19] 17, wherein said enlarged areas have flag-like configurations.

20. (New) A circuit board having a controlled impedance via layout, the vias extending through the circuit board and being plated therewithin for mating with terminals of a connector mounted to said circuit board, said circuit board including a first reference plane spaced apart from a surface of said circuit board, comprising;

5 a repeating pattern of conductive vias, the pattern comprising at least first and second triads of conductive vias, each of the via triads including a pair of differential signal conductive vias and a single ground via formed in the circuit board, said differential signal conductive vias being spaced apart from each other in a first direction and said single ground conductive via of said via triad being spaced apart from said differential signal pair of conductive vias in a second direction that is different from said first direction, the first via triad being disposed on said circuit board adjacent to the second via triad such that said second via triad associated ground via lies between said first and second differential signal via pairs, the first via triad ground via being spaced closer to its differential signal pair than to said second via triad differential signal pair;

15 the first reference plane including at least one non-conductive opening formed therein, the first reference plane one non-conductive opening being aligned with said first differential signal via pair such said first differential signal via pair of said first via triad

are encompassed within a perimeter of said non-conductive opening and said first reference plane further contacting said associated ground vias of first and second via triads; and,

wherein each ground via of said first and second via triad is surrounded by an annular collar portion, the annular collar portion being joined to said first conductive reference plane and extending for an extent of less than 360 degrees.